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INFORMATION PAPER*

FINANCIAL REQUIREMENTS FOR MANUFACTURING INVESTMENT IN DEVELOPING COUNTRIES TO THE YEAR 2000*

by

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* The views expressed in this paper are those of the author and do not necessarily reflect the views of the secretariat of UNIDO. This document has been reproduced without formal editing.

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Note: In tables, - means data not available

Most statistical data have been presented in constant 1975 prices, because most of the models quoted used 1975 prices. They may readily be coverted to 1980 prices by multiplying by 1.6. This may help readers to compare future projections with 1980 current price data.

Unless otherwise stated, estimates of GDP, MVA and investment requirements refer to annual figures, not cumulative figures.

I. SUMMARY

1. The paper examines several authoritative projections, forecasts and scenarios of the future development of the world economy. Some of these, including the projections aimed at achieving the Lima target, fall into the "high growth" range, whereas the others can be classed as "low growth" models. The view is taken in the paper that the international community has a responsibility to try to achieve "high growth" results, and must try to remove the constraints to high growth. One such constraint is the availability of external finance.[1/] Consequently the paper considers the level of external financial flows required to achieve high growth in developing countries, and considers some of the obstacles to achieving such flows.

2. The following represent orders of magnitude to be met if reasonably high growth rates (say 6% - 8% in GDP) are to be achieved over the next 20 years.

1/ Other constraints include the availability of skilled and managerial labour, access to markets and technology, and project planning capability. Parallel efforts need to be made to remove these constraints also. However, this paper abstracts from the impact of such constraints.

(Note: figures are annual requirements, not cumulative requirements).

(billion 1975 dollars)	Actual		Projections	
	1975	1980	1990	2000
All developing countries:-				
- total investment	200	260	500	1000
- manufacturing investment	35	50	100	over 200
Resource gap (=trade deficit				
- all developing countries	25(surplus)	61(surplus)	50(deficit)	150(deficit)
- oil importing developing countries	29	41	150	250
Interest on debt				
Oil importing developing countries[a/]	10	22	100	150
Net financial flows required by oil importing developing countries	50	51	250	400
Projected net financial flows to developing countries	50	51	90[b/]	160[b/]
Net financial flows required by the manufacturing sector in developing countries	10	10	40	80
Projected net financial flows to the manufacturing sector in developing countries	10	10	18[c/]	30[c/]

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a/ Excluding interest payments received on developing country deposits.

b/ Assuming 6% annual growth in real terms, the rate achieved between 1970 and 1980.

c/ Assuming 20% of total projected flows.

The above projections may result in developing countries obtaining 16-20% of world MVA by 2000. According to the modified LIDO model, the net financial flows would need to be about $135 billion in 1990, and $500 billion in 2000.

3. In the light of current trends in international money and capital markets, it seems unlikely that the above financial requirements can be met through existing arrangements. This applies to both the total amounts needed by developing countries, and the amount needed by the manufacturing sector. What the shortfall will be is not certain, and the above figures are only indicative, but it could be considerable. The consequence is that the shortage of finance is likely to be a constraint on developing countries' growth rates, and unless steps are taken to remove this constraint, developing countries are unlikely to be able to achieve the high rates of growth which are desirable.

4. Apart from the assumption that a high developing country growth is desirable, all other assumptions made have been conservative. This is in the sence that assumptions have been made which tend to minimise the size of the financial constraint, rather than to magnify it.

Specifically, values of parameters such as savings ratios, incremental capital output ratios, the future level of the surplus of oil-exporting countries and the rate of growth of financial flows to developing countries have been selected according to this principle.

II. Introduction

The object of this paper is to examine projections of manufacturing investment in developing countries, and to consider how it might be financed. The paper will start by considering several authoritative projections which have been made in recent years. It will then consider the main sources of finance for manufacturing investment in past years in the context of overall investment financing in developing countries. The paper will conclude by considering the ability of present financial arrangements to meet future requirements, and will also comment on the suitability of these sources.

Two fundamental problems confront the work of this paper. The first is the uncertainty surrounding future projections. In an attempt to minimise this problem, we have looked at a variety of different scenarios, some being forecasts of what might happen, other projections made with a view to achieve a certain target, and yet others which are only "enquires into the future". A rough average is then taken of the results, which gives orders of magnitude in which one can feel a certain degree of confidence.[1/] This leaves us with a reasonably high growth rate projection (although rather lower than Lima target projections), which is the least that the international community should aim for.

The second problem relates to the sources and availability of finance, and refers to the "fungibility" of finance. Essentially, when an external financing agency provides funds for a specific programme or project, this may allow the government to divert its own funds from that programme to a second programme. Therefore the effect of the external finance is to enable the second programme to be undertaken, rather than the programme which the agency is financing directly. This argument applies also at a sectoral level, in that external funds for manufacturing may have the effect of allowing, say, infrastructure to be financed, or vice-versa. Although this argument may be thought to undermine the discussion of the availability of finance for manufacturing, it only applies to the extent that recipient governments are faced with a capital expenditure constraint, i.e. they have more projects ready for financing than they are able to finance.

A third problem, more practical than fundamental, is the fact that finance is a necessary but not a sufficient condition for achieving economic growth. Other important constraints which have to be removed include the availability of entrepreneurial, managerial and skilled manpower; the acquisition and development of technology; the development of adequate institutions and services

1/ This method is analogous to the "Delphi technique" of forecasting, in which each participant is invited to make a forecast of the variable under discussion, and the final forecast is made by taking an average of the individual forecasts.

and the development of a capacity for national and project planning. In many countries, the lack of these capacities presents a serious bottleneck in investing finance. However, this paper is concerned only with removing the bottleneck of availability of finance, and will abstract from those other constraints. But it might be noted that parallel efforts need to be made to ensure that the other bottlenecks are also removed.

III. The Development Models to be Considered

The following models all shed some light on the possible future development of the world economy, and some insights into the development of manufacturing industry can also be obtained. The models are: -

1. LIDO (Lima Development Objectives). This was produced by UNIDO in 1978 to aid analysis of the Lima target. Both this model, and and its modified version (below) are target models rather than forecasts.

2. Modified LIDO As above, but incorporating the targets of the Third United Nations Development Decade, and some other modifications. It can be regarded as an improved version of the original LIDO model, but the main difference is that it incorporates lower growth rates.

3. Leontief Scenario X This model was produced by W. Leontief et. al in 1977, to study "the impact of prospective economic issues and policies on the International Development Strategy for the Second United Nations Development Decade".

4. UNCTAD 1978 The model is a projection of the manufacturing sector with a view to examining the possibilities and implications of achieving the Lima target. It was published in 1978 in a paper entitled "Restructuring of World Industry".

5. Trade and Development Report 1981 The projections prepared by the UNCTAD Secretariat for the twenty-fourth session of the Trade and Development Board, Spring 1982, and published in a report of that title.

6. World Development Report 1981 This is the projection given in the World Bank's report of that title.

7. Interfutures (OECD) In 1979, the OECD published a report entitled "Interfutures: Facing the Future", the result of a research project whose object was "to provide OECD Member Governments with an assessment of alternative patterns of longer-term world economic development in order to clarify their implications for the strategic policy choices open to them in the management of their own economies, in relationships among them, and in their relationships with developing countries".

8. UNIDO Industrial Development Survey Published in 1979 for the Third General Conference of UNIDO, this report contained some "non-Lima" projections, based on historical trends.

9. Global 2000 Report This report was prepared by the Council on Environmental Quality and the Department of State (USA), and published in 1982 (in the UK) under the title "The Global 2000 Report to the President".

These are the major future projections produced by the International agencies. Further details of all of them are given in Annex 1. Many other models have been produced, some very sophisticated, notably by the corporate planning sections of international companies and individual governments. However, these are generally not published, and tend to take the perspective of the company or country concerned. Therefore the models considered here are the major published works available.

It must be stated at the outset that none of the models, or their projections, are strictly comparable. They use different base years, different country groupings, different time horizons and different definitions.[1/] Most exclude China. However, these differences are generally minor, and do not affect the orders of magnitude of the projections. There are essentially two types of models, those based on the assumption of a continuation of past trends (e.g. World Development Report 1981 and UNIDO's Industrial Development Survey), and those based on the assumption of substantial structural changes in the world economy (e.g. Trade and Development Report 1981 and the "Lima target" models). Neither approach has any intrinsic superiority as a forecasting tool, but the implications of them have much in common and probably more than their authors may suppose.

1/ Wherever possible UN definitions and country groupings have been used in this paper.

IV. The Projections of the Models

Table 1 sets out the basic trend growth rates of GDP and Manufacturing Value Added (MVA) of the models, together with the developing country shares of MVA by 2000. Table 2 sets out for comparison purposes the growth rates achieved by three groups of countries for the past two decades. Although some of the projected growth rates in developing countries may look high when considered by themselves, they are not much above the historical growth rates achieved by developing countries and the socialist countries at times during the last 20 years. They cannot therefore be said to be unrealistic in the light of recent historical experience. In fact, some projections look distinctly low when compared with recent experience.

Table 3 and 4 set out respectively future GDP and MVA in developing countries at 1975 prices. These figures have been derived using recent levels of the two indicators and the growth rates in table 1.

Although it is not the intention of this paper to lay undue emphasis on the Lima target, it is interesting to consider what rates of growth in developing countries' MVA would be required to achieve it, given that in 1980 they had a 10% share of world MVA.

IC Annual growth in MVA 1980-2000 (%)	DC Annual growth in MVA to achieve the Lima target (%)
0	5.6
1	6.7
2	7.8
3	8.8
4	9.8

The above figures indicate the target growth rates for the developing countries to reach the Lima target, given alternative growth rates in MVA of the Industrial countries. From time to time throughout this paper, estimates will be made of financial flows required if the Lima target is to be met.

Table 1 Projected Growth Rates of GDP and MVA, to Year 2000

(per cent)

Model	Growth in GDP of Industrialized Countries		Growth in GDP of Developing Countries		Growth in MVA of Industrialized Countries		Growth in MVA of Developing Countries		Developing Country Share of World MVA
	1980-90	1990-2000	1980-90	1990-2000	1980-90	1990-2000	1980-90	1990-2000	2000
LIDO	4.0	4.0	8.1	8.1	4.6	4.6	9.8	9.8	25
Modified LIDO	3.7	3.9	7.4	8.4	4.2	4.3	8.7	10.2	25
Leontief Scenario X	4.0	4.0	7.2	7.2	4.0	4.0	8.0	8.0	18[1/]
UNCTAD 1978	-	-	-	-	5.4	4.7	10.3	9.3	25
Trade and Development Report, 1981	2.6	2.8	6.4	7.0	3.5	3.2	8.0	8.8	23
World Development Report 1981									
- High	3.7	-	5.7	-	-	-	-	-	-
- Low	3.0	-	4.5	-	-	-	-	-	-
Interfutures (OECD)	1980-2000		1980-2000		1980-2000		1980-2000		
Scenario A	4.5		6.5		4.3		7.6		16
B2	3.8		6.0		3.8		7.1		17
C	2.8		5.4		2.8		6.4		19
D	3.7		5.9		3.9		7.3		18
UNIDO Industrial Development Survey	5.6		6.8		5.7		8.0		14

(cont.) Table 1 Projected Growth Rates of GDP and MVA, to Year 2000

Global 2000 Report	1975-85	1985-2000	1975-85	1985-2000	1975-85	1985-2000	1975-85	1985-2000
- High	4.9	3.9	6.0	5.1	-	-	-	-
- Med	4.1	3.3	5.0	4.3				
- Low	3.3	2.7	4.0	3.5	-	-	-	-

1/ 24% if Asian centrally planned economies are included

Note: - the table indicates that estimates for that item were not made in the models.

(It is interesting to compare the above with two scenarios recently produced by a commercial organization, Schroder Wagg, the British merchant bank. The first scenario, "realistically achievable", projects the growth of world output by about 3.5% per year; the second, "depression", a growth of world output of about 1.2% per year (both from 1980-1990). The realistically achievable scenario is consistent with the more pessimistic scenarios above, such as Trade and Development 1981, World Development Report 1981 "Low" and Interfuture Scenario C).

Table 2 Some Historic Annual Growth Rates

(per cent)

	1960-1970	1970-1980
1 GDP		
Developed Market Economies	4.94	3.24
Socialist Countries of Eastern Europe	6.59	5.31
Developing Countries	5.88	5.63
2 MVA		
Developed Market Economies	5.9	3.7
Socialist Countries	9.0	7.3
Developing Countries	7.6	8.0

Source: - Trade and Development Report, 1981, tables 31 and 36.

(UNCTAD, 1981)

Table 3 Future Values of Developing Country GDP

(billion 1975 dollars)

Developing Country GDP in 1980 = $1100 billion (at 1975 prices)

	1990	2000
LIDO	2397	5223
Modified LIDO	2455	5496
Leontief Scenario X	2204	4418
UNCTAD 1978	-	-
Trade and Development Report, 1981	2045	4022
World Development Report, 1981[1/]		
- High	1914	-
- Low	1708	-
Interfutures (OECD)		
Scenario A	2065	3875
B2	1969	3528
C	1861	3149
D	1951	3462
UNIDO Industrial Development Survey	2123	4100
Global 2000 Report (GDP)	1985	2000
- High	2027	4267
- Med	1841	3452
- Low	1669	2797

1/ These differ from the actual figure in the World Development Report, because the UNCTAD figure has been taken for 1980 GDP, which in turn is in 1975 prices. The figure of $2810 billion in the World Development Report is at 1978 prices.

Table 4 Future Manufacturing Value Added in Developing Countries

(billion 1975 dollars)

	1990	2000
LIDO[1/]	623	1499
Modified LIDO[1/]	525	1382
Leontief Scenario X[2/]	470	1016
UNCTAD 1978 [1/,3/]	772	1881
Trade and Development Report, 1981[1/]	471	1094
World Development Report, 1981	-	-
Interfutures (OECD)[2/]		
A	453	943
B2	432	859
C	405	754
D	441	892
UNIDO Industrial Development Survey	470	1016
Global 2000 Report	-	-

1/ These figures were projected by the models, LIDO, Modified LIDO and UNCTAD 1978 used 1975 data as the base; Trade and Development Report used 1980 data.

2/ These projections have been made by the author, using the growth rates in table 1, and a value for developing country MVA in 1980 of US$218 billion at 1975 prices (see Trade and Development Report p. 100.) Therefore some small anomolies may appear in the above table, due to different base years being used.

3/ Adjusted from the original projections which were made at 1972 prices.

From table 2, it can be seen that the investment ratio of 0.24[1/] over 1970-78 produced a GDP growth rate of 5.63% over 1970-78. Thus the Incremental Capital Output Ratio was $\frac{0.24}{0.0563} = 4.3$

(Obtained from the equation gross investment = GDP x growth in GDP x ICOR).[2/]

Applying this value of the ICOR to the GDP projections in table 3 gives the level of investment required to achieve these GDP projections. The results are given in table 5 (Note that the LIDO and Modified LIDO models produced their own investment estimates, and these have been retained in table 5). Estimates of manufacturing investment have been obtained similarly, (manufacturing investment = MVA x growth in MVA x manufacturing sector ICOR). A figure of 3.0 has been used for the manufacturing sector ICOR,[3/] and the results presented in Table 6. The notion of an ICOR is surrounded by conceptual difficulties as well as difficulties of measurement.[3/] However, it is probably an adequate tool to use when the object is merely to estimate rough orders of magnitude, as is the case here, although it is necessary to advise caution in using ICORs for more precise work (such as the investment requirements of a national plan).

1/ See table 7 below for the source of this figure. No time lag has been allowed between investment and output, or in other words it is assumed that investment and growth rates were the same before 1970 and after 1978.

2/ The approach used is that of the Harrod-Domar model ($g = \frac{s}{v}$), where g = growth rate, s = savings (assumed equal to investment), and v is the incremental capital output ratio. The main problem is that it assumes that growth is determined solely by the level of investment, whereas in fact many other factors are also required.

3/ See Annex 2 for a discussion of the range of numerical values of manufacturing sector ICORs.

Table 5 Future Gross Annual Investment Required by Developing Countries
(billion 1975 dollars)

	1990	2000
LIDO[1/]	918	2016
Modified LIDO[2/]	625	1661
Leontief Scenario X	683	1369
UNCTAD 1978	-	-
Trade and Development Report, 1981	563	1212
World Development Report 1981		
- High	470	-
- Low	331	-
Interfutures (OECD)		
Scenario A	578	1085
B2	508	910
C	433	732
D	496	879
UNIDO Industrial Development Survey	621	1200
Global 2000 Report	1985	2000
- High	522	938
- Med	396	638
- Low	287	421

1/ The LIDO model assumed gross ICOR's of 3.2 for Asia and Africa, and 4.5 for Latin America and the Middle East.

2/ The Modified LIDO model assumed gross ICORs of 3.2 for Asia and Africa, and 3.6 for Latin America and the Middle East.

Table 6 Future Manufacturing Investment required by Developirg Countries
(billions of 1975 dollars)

Model	1990	2000
LIDO	184	450
LIDO Modified	137	421
Leontief Scenario X	113	244
World Development Report 1981	-	-
Trade and Development Report	113	289
UNCTAD 1978	179	394
Interfutures A	103	215
B2	92	183
C	78	145
D	97	195
UNIDO Industrial Development Survey	113	244
Global 2000 Report	-	-

Note: A value for the ICOR for the manufacturing sector of 3.0 has been used
See Annex 2 for a discussion of the derivation of this value.

V. Interpretation of the results

The last two tables, 5 and 6, show a wide range of possible annual investment levels, both in total and in the manufacturing sector. The figures depend of course on the initial assumptions made by the various models concerning the growth rates of GDP and MVA given in table 1. It is interesting to compare the results with estimates of investment in recent years.

Annual Investment in Developing Countries[1/]
(billion 1975 dollars)

	1970	1975	1980	Annual Rate of growth, 1975-1980
Total investment	160	200	260	5.4%
Manufacturing investment	25	35	50	7.5%
Manufacturing as % of total	16	17.5	19	

Taking a consensus of the projections of gross annual investment in table 5, it looks as though investment of at least $500 billion will be required in 1990 if a reasonably high growth rate is to be maintained, and over $1,000 billion by 2000. The figures will be considerably higher if the Lima target is to be achieved. This indicates that the rate of growth of investment will have to be at least maintained for the next 10 years, and accelerate to 7.5% per year during the last decade of the century.

Turning to manufacturing investments, an examination of table 6 suggests that manufacturing investment will have to reach at least $100 billion by 1990, and over $200 billion by 2000, if an acceptable growth rate is to be achieved. The figures will be rather higher if the Lima target is to be achieved. Therefore the rate of growth of 7.5% in manufacturing investment will have to be at least maintained for the next 20 years if acceptable rates of growth are to be achieved.

VI. Financing Investment Requirements

Because of the "fungibility" characteristics of finance mentioned in the introduction, it is necessary first to examine possibilities of financing total investment requirements, and to go on from there to examine the particular problems associated with the manufacturing sector.

1/ Authors's estimates. See Annex 3 for details.

The two sources of finance available to developing countries are domestic savings and foreign inflows. Domestic savings finance the majority of developing country investment. If domestic saving is less than investment, the difference comes from foreign financing, and is known as the resource gap,[1/] which can then be expressed as: -

1. Resource gap = gross domestic investment - gross domestic saving.

It can also be expressed in relation to a country's trading position, as follows: -

2. Resource gap = imports - exports

(If exports exceed imports then the country has a capital surplus, and then becomes a net exporter of capital, assuming no debt. If imports exceed exports, though, it indicates the extent to which a country has to import foreign capital to meet the gap).

External financial flows are used to cover the above gaps. Total financial flows though have to cover also net factor payments, such as interest on existing debt, remittances and dividend payments, as follows:-

3. Net financial flows[2/] = resource gap + net factor payments where net factor payments = interest + dividends - remittances.

From the above identities, we obtain

4. Net financial flows = gross domestic investment - gross domestic savings + net factor payments

or

5. Net financial flows = imports - exports + net factor payments
= current account balance.

1/ Ex-post, the savings gap and the trade gap will be equal. Ex-ante calculations may show one to be greater than the other, in which case the larger should be taken as the resource gap. For definitions of terms, see Annex 4.

2/ Net financial flows are defined for statistical purposes as new financial flows - repayments of principal. They appear on the capital account of the balance of payments, and therefore interest payments, being a current account item, are not included in the statistics of net financial flows.

Therefore we can calculate the net financial flows required to meet a given level of investment, if we know the level of domestic savings and of net factor payments. Alternatively, we can arrive at the estimate from estimates of the trade balance and net factor payments. Rather than use external financing, a country could attempt to increase domestic savings or to close its trade gap, (which amounts to the same thing). However, the possibilities of doing this tend to be limited, as will be shown.

a) The Projection of the Models

The only published model which gives projections of financial flows to developing countries is the World Development Report. Figures given are as follows:

(billion 1975 dollars)	1990
World Development Report 1981[1/]	
- High	71
- Low	50

([1] The figures given in the Report are 1978 prices, and have been corrected here to 1975 prices).

Some other models give projections of trade deficits. In order to arrive at projections of net financial flows, it is necessary to add estimates of net factor payments.

Projected Developing Country Trade Deficits (-)

(billion 1975 dollars)

	1990	2000	Implied domestic savings ratio, 2000
LIDO[1/]	-91	-134	36%
Modified LIDO[1/]	-69	-127	28%
Leontief Scenario X[2/]	-	-109	28%
Trade and Development Report[3/]	-155	-	19% (1990)

(A further projection of the trade gap of $275 billion at 1974 prices was made by Prof. H.F. Lydall, Prospects for Further Industrialization of Developing Countries through Exports of Manufactures, prepared for UNIDO in 1979).

1/ Both LIDO and Modified LIDO postulate trade deficits equal to 1% of GDP of industrialized countries. They also assume that the Middle East has a trade deficit of 0.

2/ Leontief Scenario X gives a trade deficit of $169.4 billion (1970 prices) if the Middle East surplus is excluded. Taking into account net factor payments, it gives a deficit of $420 billion (at 1970 prices) in the year 2000, also excluding the trade surplus and foreign interest received by the Middle East. (See the Future of the World Economy, page 68, table 67).

3/ The Trade and Development Report (page 92, table 33) indicates a trade deficit equal to 7.6% of developing country GDP in 1990.

The savings ratios implied by the above projections have been estimated from table 3 (GDP) and table 6 (annual investment). In the light of the historic domestic savings ratio of 23% for all developing countries over 1970-78, only the Trade and Development Report projection looks realistic. The other implied savings ratios all look too high which suggests that the projected trade deficits are too optimistic. Alternatively, if they are realistic, it implies a smaller value of the investment ratio, and therefore a lower value of the ICOR than that used here.

It will therefore be instructive to consider the resource gap from the other side by taking a reasonable value of the domestic savings ratio and comparing the estimated savings with the projected annual investment in table 5.

b) The Savings-Investment Approach

Table 7 Investment and Savings Ratios

(percentage of GDP)

	1960-78	1960-69	1970-78	1978
All developing countries				
Gross domestic investment	-	18	24	27
Gross domestic savings	23	-	-	26
Excluding 4 surplus countries[1/]	-	-	-	23
Developed market economies				
Gross domestic investment	-	-	-	22
Gross domestic savings[2/]	-	-	-	22
Oil Exporting Countries				
Gross domestic savings	-	-	39	39
Non-oil exporting developing countries				
Gross domestic capital formation	21.6	18.3	22.9	-
Gross domestic savings	18.9	16.7	19.9	-
Foreign savings	2.7	1.6	3.0	-
Least developed countries				
Gross domestic capital formation	12.8	11.4	13.5	-
Gross domestic savings	8.2	10.2	7.1	-
Foreign savings	4.6	1.2	6.4	-

Source: - Trade and Development Report, UNCTAD, 1981, pp.33-38
- Not available.

1/ The surplus countries are Iraq, Kuwait, Libya and Saudi Arabia.

2/ Taken from World Development Report 1980 (World Bank), p.119.

The World Development Report, 1981, stated (page 12): - "For all oil importers during 1975-78, net transfers of foreign resources totaled 3.7% of GDP compared to investment rates of about 24% of GDP. Foreign capital therefore financed nearly one-seventh of total investment - a significant, but not dominant, contribution".[1/]

The World Development Report and the Trade and Development Report figures are entirely compatible. But what is striking about the latter is the relatively high proportion of foreign savings in gross investment in the least developed countries in the 1970s. What is also striking is the way in which dependence on foreign savings increased in the 1970s compared with the 1960s.

In view of the fact that gross domestic savings of non-oil developing countries over 1970-78 was 19.9%, and that future savings of oil exporting countries must be regarded as uncertain, it seems unwise to expect the future level of gross domestic savings for all developing countries to exceed the figure of 26% achieved in 1978. Applying this value to projections of GDP in table 3, projected savings have been derived in table 8. These have been subtracted from projected investment in table 5 to arrive at projected savings gaps in table 9.

The results in table 9 cover a wide range of course. After eliminating the extremes at both ends, the higher growth models which have targets which are desirable and not unrealistic to aim for suggest that in 1990 the gap may be about 50 billion dollars. By 2000 the figure exceeds $100 billion, and perhaps even $200 billion. On the other hand, the "lower growth" models suggest that the developing countries may even have a savings surplus.[2/] For comparison a "Lima target" model is also included.

Projected Resource Gap, all Developing Countries

(billion 1975 dollars)

	1990	2000
"Higher growth" models	50	150
Modified LIDO	-15	230

1/ The World Bank estimated a domestic savings ratio of 21% in 1975, and forecasts that it would rise to 23% by 1985 and to 24% by 1990. (World Development Report 1978, p.27, and 1980, p.9).

2/ From table 7 it can be seen that over 1970-78 foreign savings amounted to 3% of GDP. If this proportion is maintained, it would imply that the resource gap by 2000 would be between $100-150 billion at 1975 prices. However, accelerating growth implies that the ratio of foreign savings to GDP will increase.

Table 8 Future Gross Domestic Savings of Developing Countries

(billion 1975 dollars)

	1990	2000
LIDO	620	1360
Modified LIDO	640	1430
Leontief Scenario X	570	1150
UNCTAD 1978	-	-
Trade and Development Report, 1981	530	1050
World Development Report, 1981		
- High	500	-
- Low	440	-
Interfutures (OECD)		
- Scenario A	540	1010
B2	510	920
C	480	818
D	510	900
UNIDO Industrial Development Survey	550	1070
Global 2000 Report	1985	2000
- High	530	1110
- Med	480	900
- Low	430	730

Table 9 Future Savings Gap of Developing Countries

(billion 1975 dollars)

	1990	2000
LIDO	298	656
Modified LIDO	-15	230
Leontief Scenario X	113	219
UNCTAD 1978	-	-
Trade and Development Report 1981	33	162
World Development Report 1981		
- High	-30	-
- Low	-109	-
Interfutures (OECD)		
Scenario A	38	75
B2	-2	-10
C	-47	-86
D	-14	-21
UNIDO Industrial Development Survey	71	130

Global 2000 Report	1985	2000
- High	- 8	-172
- Med	-84	-262
- Low	-143	-309

A major aspect of the deficit to be financed is the trade deficit of the oil importing developing countries. Recent estimates of the deficit are: -

(billion US dollars)	1977	1978	1979	1980	1981[1]
Current prices	23.3	33.0	48.4	65.2	80
1975 prices	20.2	26.6	36.1	40.8	50

[1]Estimate.

Source: - Current prices from IMF, Annual Report 1981, p.20

Such figures make the above estimates of the resource gap appear conservative. What is more, as Avramovic points out, the developing countries have certainly been trying to reduce their deficits.[1/]

All the projections considered previously lump together all developing countries, oil exporting and oil importing. The trade deficit figures therefore include the surplus of the oil-exporting countries. In recent years these have been: -

Trade surpluses of oil-exporting countries

(billion of dollars)

	1977	1978	1979	1980
Current prices	61.5	41.1	111.0	163.0
1975 prices	53.2	33.1	82.8	101.9

Source: - Current price data from IMF Annual Report, 1981, p.20

The increase in 1979 followed the second round of oil price increases. If we assume that the surplus stabilizes around $100 billion at 1975 prices, then this amount needs to be added to the previous projections of the resource gap to obtain the deficits of the oil importing developing countries. The projections then become: -

Resource gap, oil-importing developing countries

(1975 billion dollars)

	1990	2000
"Higher growth" models	150	250
Modified LIDO	85	330

1/ D. Avramovic, The Developing Countries after Cancun: The Financial Problem and Related Issues (Journal of World Trade Law, Vol 16, No. 1, Jan/Feb 1982).

Net Factor Payments

In 1980, interest on developing country debt amounted to over 36% of net new financial flows to developing countries in that year (see Annex 5). The proportion is rising; in 1975 it amounted to only 17%. Thus an increasing proportion of net new financial flows is being used to pay the interest on outstanding debt. We will assume that this proportion will stabilize at the present level. Therefore to finance an annual resource gap of $100 billion, and service existing debt, developing countries will need to receive net financial inflows of $160 billion. Applying this factor to the projections above gives us the following projections of net financial flows to oil-importing developing countries.

Approximate net financial flows required by oil-importing countries

(billion 1975 dollars)

	1990	2000
"Higher growth models"	250	400
Modified LIDO model	135	530

(The above discussion has excluded dividend flows from developing countries, and remittances to developing countries. Both are difficult to estimate with any certainty; OECD estimated dividend payments to be $12.6 billion in 1976[1/], and UNCTAD gave a figure of $6.3 billion for remittances in 1979.[2/] The flows are in opposite directions, but it appears that the net effect is likely to be a capital outflow. However, we will assume that they cancel out each other, for simplicity.)

1/ Development Co-operation 1978 Review.

2/ Trade and Development Report, p.119 (UNCTAD 1981).

It is interesting to consider what percentage of the GNP of industrialized countries the above projected financial flows might represent. Taking GNP of industrialized countries as $6000 billion (at 1975 prices) in 1980, and taking the middle value of $400 billion for financial flows in 2000, the flowing results are detained.

Project net financial flows as % of GNP of industrialized countries

Rate of Growth of GNP of Industrial Countries	1990	2000
2%	3.4%	5%
3%	3.1%	3.7%
4%	2.8%	3%
5%	2.6%	2.5%
Net financial flows ($ billion)	250	400

(In 1980, the figure was about 0.85%)

VII. Implications for Financial Flows

All the "high growth" models (e.g. those from UNIDO and UNCTAD) project substantial resource gaps which with interest and dividend payments to be added on, give much greater requirements for the financial flows. The "low growth" models on the other hand tend to show developing countries with trade surpluses, and therefore much lower or negligible needs for external financial flows. The difference may be put down to the much greater need for inputs of capital goods under the high growth, high investment scenarios, which entails much greater external financing.[1/]

In the light of the high historical growth rates which have been achieved, and in view of the generally agreed need to accelerate growth in developing countries as much as possible, it is the responsibility of the international community to aim at the higher growth rates, and to attempt to remove whatever constraints appear to be in the way of achieving the high growth targets.[2/] Clearly, one such constraint may be the availability of finance for investment, and it is necessary to consider how the potential constraint may be removed, for the whole economy and the manufacturing sector in the developing world. As the Interfutures Report remarked: -

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1/ A lucid account of the relationship between growth and the need for external financing is given by Irving Friedman. "Is Optimism on Developing Country Debt Justified? (Paper given at the Financial Times World Banking Conference, Dec. 1981.) "Growing societies' ..... need for capital outruns their ability to accumulate capital through their own productive capacity".

2/ This is not to say that the results will not turn out as predicted the "low growth" scenarios. However, pessimistic economic prophesies have a tendency to be self-fulfilling because economic expectations and behaviour tend to be influenced by them. For this reason they should not be accepted passively.

"The size of the flows from the industrialized countries will of course depend on the growth of trade, and, more generally, on the nature of international relations. The World Bank's initial assumption of a real growth rate of 5% for non-concessional capital flows seems modest, but more important than the very hypothetical projection of such a rate are the institutional and financial conditions that must be created now to permit a balanced growth of aggregate flows".[1/]

The World Bank remarked:-

"Several factors could boost the developing countries' growth rate above the rates projected in the High case. For example, the level of capital flows, particularly from the private sector, may be considerably higher than expected; and the industrial countries could reduce or eliminate non-tariff barriers that restrict the volume of developing country exports. Neither development is probable, but neither are they outside the bounds of possibility".[2/]

Clearly, those responsible for policy-making at an international level have a duty to do whatever is possible to increase these probabilities, and to aim for the higher levels of growth indicated in "high growth" models. At the same time, it is worth recalling that although the availability of finance is a necessary condition for growth, it is not sufficient, and parallel attempts need to be made to push back the other constraints on growth.

1/ Interfutures: Facing the Future, p.272 (OECD 1979).

2/ World Development Report, 1981, p.16 (World Bank, 1981).

VIII. Prospects for Financial Flows to Developing Countries

At 1975 prices, net long-term financial flows to developing countries (excluding Southern Europe) amounted to $51 billion in 1980. Over the period 1971-1980.[1/] If the rate of growth of 5.8% continues over the next 20 years, the figure in the year 2000 will be $157 billion. Therefore even this optimistic projection would be unlikely to provide sufficient financial flows to meet the external financial requirements implied by the higher growth models.

Over 1970-80, all the real growth in financial flows occurred in the first five years, and mainly following the first increase in oil prices. The zero growth experienced since 1975 suggests that the future increase in financial flows will be somewhat lower than the 5.8% rate used above. What is more, it suggests that the shortage of foreign finance has already become a constraint on development; this has manifested itself in the severe internal adjustments made by many developing countries in the light of rising prices of oil and capital goods and falling prices received for commodity exports. The additional finance (in real terms) has not been available to meet these externally imposed burdens. Therefore they have had to be borne by internal adjustments and consequent lower economic growth.[2/]

A second way in which the shortage of external finance has become a constraint on development is through the high (real) level of interest rates. The rise in the cost of marginal external capital to 18% or more has the effect of eliminating those projects whose rate of return falls below 18%, therefore a considerable amount of investment must have been postponed or cancelled in the last two years.[3/] It is probable that the manufacturing sector will have been harder hit than other sectors because of its greater dependency on finance on hard terms. This problem is certainly not limited to developing countries, though, and is a general problem of high world interest rates.

1/ See table 10 below

2/ See D. Avramovic, op cit, for a further account of these problems. A current example of the shortage of finance is provided by the failure of Mexico's $2.5 billion credit. After 2 extensions of the deadline, less than 20% had been subscribed (Financial Times, 17/6/1982).

3/ See Development Co-operation 1981 Review, p.70. (OECD).

In order to reach the target level of $250 billion by 1990 and $400 billion by 2000, the net flows of finance will have to grow at 17% per year in real terms up to 1990 and 6% per year thereafter. This is much more than the rate of growth achieved in the decade 1971-80. While it is difficult to foresee the developments in international finance over a period of 20 years (who had heard of the Eurocurrency market 20 years ago?), the short and medium term prospects do not look encouraging.

The tight monetary policies of the major world economies are having the effect of reducing international liquidity. This is not just a matter of "squeezing out" the inflationary element from the money markets; it has the result of making the cost of money in real terms higher than for many years. The present substantially positive real rates of interest have had a significant effect on the developing country interest charges on existing debt;[1/] how long can developing countries continue to incur new debt at such high real rates of interest?

At the same time, the falling demand for, and price of oil are likely to have a significant impact on world capital markets. Oil-exporting countries are faced with a lower sales volume, at lower prices.[2/]

The large financial surpluses which they have made in recent years will be diminished, and in some cases eliminated. To some extent this will assist oil importing developing countries, as their import bill will be reduced. However, the major effect will be a transfer of resources from oil-exporting countries to industrialized countries. As the latter have a much lower propensity to save than the former, the consequence will be a decline in world savings. In other words, there will not be the surpluses to recycle that there have been in the last ten years. Moreover, some oil-exporting countries may have to switch from being capital exporters to capital importers (or to increase their imports of capital), as they find their trade surpluses falling.

1/ OECD has estimated that the cost of developing country floating interest debt rose from 7.8% in 1977 to 18% in 1981. The weighted average cost of all debt rose from 6.6% to 10.2% over the same period. (Development Co-operation 1981 Review, p.70).

2/ This is to some extent offset by the rising dollar, oil prices being quoted in dollars.

They will then turn to the international capital market, where they will obtain preference over oil-importing developing countries. As a result, as an OECD spokesman said, "there will be a drop in funds available for new lending to non-OPEC nations".[1/]

A further consideration is the fact that some banks are now very concerned about the loans they have outstanding to some developing countries, and with others they are up against their lending limits for those countries. These points have been discussed in detail by Avramovic,[2/] who concludes: "The upshot of this discussion is that the present constant flow of gross capital market lending to developing countries is not likely to give way to an upsurge in the near future. Hence the decline in net resource transfer should be expected to persist." The Bank for International Settlements also gives support ....." clearly, the conditions for a further large increase in international bank lending, particularly to non-oil developing countries, are now less favourable than they were in 1974 and the attendant risks for the banks are greater.... In this situation, appropriate action is called for by the international financial community as a whole, by certain deficit countries and by the banks themselves in order to assure a continuation of adequate recycling through the international banking system". [3/]

1/ Quoted by the Asian Wall Street Journal on 22/2/1982.

2/ D. Avramovic, op. cit.

3/ Bank for International Settlements, Annual Report 1981, p.111.

On the other hand, some bankers are optimistic about the ability of banks to provide the extra funds needed, at least during the next 3-4 years. 1/

Turning to aid, it is difficult to foresee at the moment any big expansion in aid flows. The reluctance of major donors (notable the USA) to replenish the ODA funds, and perception by some countries (e.g. the UK) that bilateral aid is a soft target when cutting total government expenditure does not encourage the belief that aid will go far beyond its present level of 0.37% of GDP of DAC countries. Unless there is a major expansion of aid from an unexpected source (e.g. the CMEA countries), there is little likelihood of any substantial increase in the foreseeable future.

Finally, the biggest potential increase in developing country resources comes from increased trade, notably in manufactured goods. It is possible to envisage considerable growth in both South-South and South-North trade over the next 20 years, but recent protectionist trends in the North do not hold out much hope of the latter. This is nothing new, and its consequences in the early 1930s were serious. 2/

1/ See for example, R. O'Brien. Should bank lending to developing countries be underpinned by international institutions? (Paper presented at a Conference on the Euromarkets in 1981, Jan. 1981.) O'Brien estimates that by 1984 non-oil LDCs will have a trade deficit of $91 billion, and that net private bank financing can rise from $31 billion in 1980 to $76 billion in 1984. The numbers are apparently at current prices.

Another "optimist" is Irving Friedman, op. cit. Friedman believes that if banks "improve the available statistics, share more information with each other and introduce country and credit risk assessment systems appropriate to their banks", then they will be able to expand their lending substantially. A forecast has also been made that Japanese banks will treble their international lending between 1981 and 1990 in real terms (see S. Bronte. This is the Decade of the Conquering Yen, Euromoney March 1982.)

2/ "Aside from gold payments, and the possibility of securing new credits, debtor nations can meet their obligations only through the export goods or by services. But, as is the case in regard to gold and credits, the policy of the United States and France, as well as other creditor nations, has tended to make repayment by these methods difficult."

(From M. Winkler, Foreign Bonds: An Autopsy. R. Swain, USA, 1933).

To conclude, prospects for maintaining financial flows to oil-importing countries even at present levels do not look particularly good. Prospects of maintaining the real rate of growth of 6% in flows of the last decade look even worse. Finally, the prospect of providing the much higher flows required to meet the Lima target or other high growth models seems non-existent with the present financial instruments and mechanisms. It is beyond the scope of this paper to discuss new proposals, suffice it to say that unless new mechanisms are found, there is a serious danger that the lack of availability of finance will shortly become a major constraint to even the most modest rates of growth in developing countries.

IX. Requirements and Availability of External Finance for Manufacturing Investment

The level of manufacturing investment in developing countries in value terms indicates that it was around $35 billion 1975, and around $50 billion in 1980, both figures being at 1975 prices.[1/] In the 1970s, manufacturing investment accounted for about 18% of total investment. Table 5 indicates that given reasonably high levels of growth, the figure can be expected to rise to at least $100 billion in 1990, and in excess of $200 billion by 2000, again at 1975 prices. Considerably higher figures will be required if the Lima target is to be met.

The extent to which manufacturing investment is dependent on external financial flows is again difficult to estimate, but it seems that in the mid-1970s between 19% and 22% of net external finance went into manufacturing investment.[2/]

Although these figures must be treated with caution, they do suggest that the manufacturing sector is relatively more dependent on foreign finance than is the rest of the economy. This can be seen from table 7, which indicates that foreign savings provided only about 13% of total gross domestic capital formation over 1970-78. The view is also supported by the World Bank, which stated that during 1975-80, "Foreign capital therefore financed nearly one seventh of total investment.... most gross investment in developing countries takes the form of housing and other construction. Foreign capital often provides the essential imports of machinery and materials that make other domestic investment possible".[1/] As manufacturing investment is weighted towards machinery, this remark suggests that industry is relatively dependent on foreign finance.

1/ Author's estimates.

2/ See R. Kitchen, Financial Flows: Statistical Background. In Industry 2000 - New Perspectives. Collected Background Papers Vol. 1, International Financial Flows.

Table 10 below indicates the approximate magnitude of external finance going to manufacturing investment.

Table 10 Net long-term financial flows to developing countries[a]

(billion dollars)

	1970	1975	1976	1977	1978	1979	1980[b]
At current prices	17.60	50.63	50.01	54.94	67.74	70.49	75
at 1975 prices	28.95	50.63	46.56	47.53	54.54	52.64	51
20% share allocated to industrial development	5.79	10.13	9.31	9.51	10.91	10.53	10.2

a) Developing countries in Africa, Asia and Latin America

b) Estimates

Note: - The above figures are lower than those produced by OECD because flows to Southern European countries have been omitted.

The above table shows that financial flows in real terms have remained static. Foreign financial flows probably provided about one third of manufacturing investment in 1975, but a lower proportion, about 20%, in 1980. If the proportion of 20% is maintained in the future, foreign flows will have to provide $40 billion to manufacturing in 1990, and $80 billion in 2000. In other words, foreign flows to the manufacturing sector will have to grow at 7.5% per year in real terms.

However, both qualitative and quantitative reasoning indicates that external finance has played a decreasing role in the manufacturing sector in recent years. The lack of growth in real terms, together with higher interest rates, suggest that the manufacturing sector has been starved of foreign capital.

1/ World Development Report 1981, p.12.

It is unlikely that the shortfall in foreign finance has been fully met by domestic finance, except in a few countries. First, foreign exchange usually is quite an important component of manufacturing investment. Secondly, the shortage of local equity capital is a constraint in many countries, even when high debt: equity ratios are tolerated. Thirdly, in many countries, manufacturing comes well behind land, property and trade in the lending preferences of financial institutions. Returns tend to be higher and safer in these sectors then in manufacturing. Moreover, real estate provides better security to lenders than factory buildings and equipment. In the event of default, real estate is much more valuable security than is a factory which is a "gone" concern. Therefore it seems likely that attitudes behind both foreign flows and domestic capital markets tend to discriminate against the manufacturing sector. If the projected investments required by the manufacturing sector are to be approached, these attitudes will have to change appreciably, so that the manufacturing sector does not continue to be starved of capital.

Turning to dependence on foreign sources of finance, the available evidence suggests that this dependence is not satisfied by Official Development Assistance. An analysis of OECD's detailed data collected under the Creditor Reporter System indicates that over 1974-80, the proportions of ODA from DAC member countries allocated to industrial development in each year varied between 4% and 9%. The figure rises to about 15% when multilateral aid is included.

Although the data should be used with caution, the results are sufficiently conclusive to indicate that industry received low priority in aid allocation, which is in accordance with the stated priorities of most DAC member countries.[1/] The manufacturing sector therefore is not only dependent on external finance, it is dependent on non-concessional finance, i.e. direct investment, export credits and bank lending. Of these, it has already been shown that bank lending is under pressure, which leaves the manufacturing sector very dependent on direct investment and export credit for growth in investment. It is possible that even export credit will come under some pressure as the debt service burden increases in some countries, and governments become increasingly reluctant to guarantee export credits as a consequence. Moreover there is considerable pressure to reduce the subsidy element in export credits.

The lack of availability of ODA for industrial development indicates that the manufacturing sector has to depend on finance on hard terms for investment. This includes less expensive export credits, which however have the disadvantage of being generally of shorter maturity, thereby imposing considerable strains on the cash flow of the project.[2/] Direct foreign investment again is high cost in terms of dividend outflows, and can be considered the most expensive source of capital. With high levels of interest, it will tend to decline, as the rates of return available do not give sufficient profit.

At the same time, most of the models examined earlier suggest that the ratio of manufacturing investment to total investment will rise to between 20 and 25% (see tables 5 and 6).

This is certainly the case for those models which approach the achievement of the Lima target. However, current prospects for external finance do not look encouraging, and prospects for such finance going to the manufacturing sector looks even less encouraging. Therefore it seems that the availability of external finance may be a substantial constraint on the

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1/ However, there have been some recent instances of DAC member governments combining concessionary finance with export credits to finance manufacturing projects. Aid is thus being allocated to manufacturing in order to win competitive contracts.

2/ OECD has estimated that floating interest debt cost 18%, DAC official export credits 7.3% and private export credits 8.9% in 1981. (Development Co-operation 1981, Review, OECD).

development of the manufacturing sector. Moreover, this conclusion is not dependent on the assumption of the achievement of the Lima target. Even a modest increase in developing countries' share of world MVA may be threatened by the shortage of external finance.

Annex 1

OUTLINE OF THE GLOBAL DEVELOPMENT MODELS

1. LIDO Model[1/]

This model was developed by UNIDO in 1978 to examine the implications of meeting the Lima target. (That is, that developing countries should produce 25% of world manufacturing value added (MVA) by the year 2000). This figure is therefore taken as a target, and the Lima target for regional shares in total world MVA is assumed to have been achieved by the year 2000. Key assumptions are the growth rate of GDP in the industrialized countries (taken as 4% per year), the trade deficit of developing countries, taken at 1% of GDP of the industrialized countries. This figure was taken to coincide with the target of 1% for resource transfers from the industrialized to the developing nations. It was also assumed that each region would be self-sufficient in agriculture.

The model only goes as far as projecting MVA by region for years 1990 and 2000 and the growth rates in MVA. It does not project manufacturing investment.

2. The Modified LIDO Model

The LIDO model was subsequently modified to take account of the scenario for the Third United Nations Development Decade. This assumes the following rates of growth of GDP for industrialized nations.

1975-80 - 3.5% (equal to the actual rate achieved over 1972-77)
1981-90 - 3.7%
1991-2000 - 3.9%

1/ A fuller account of LIDO model, and the "modified" LIDO model, are given in "Modelling the attainment of the Lima target: the LIDO model" (secretariat of UNIDO, Industry and Development No. 6, 1981 (Sales No.E.81. II.B.4.).

The growth rate of GDP of developing countries was set at 7.4% for the period 1980-1990 (the actual rate achieved over 1972-77 was 6.2%). The figure of 7.4% has been used also by the FAO and the Department for International and Economic Affairs of the UN Secretariat.[1/] For the period 1990-2000 the growth rate is produced as a consequence of the model: the rate necessary to achieve the Lima target is 8.4%.

At the same time, the rate of growth of agriculture in developing countries was limited to 3.6% in the light of a FAO study.[2/] Previously a rate of growth of 5.6% had been generated by the model. Therefore the self-sufficiency of each region no longer applied, and the industrialized countries are found to have an agricultural trade surplus. Other minor modifications were incorporated, notably the lowering of ICORs for Latin America and the Middle East were lowered from 4.5 to 3.6.

"The most important point that emerges from the assumptions for the scenario for the Third United Nations Development Decade is that they are basically identical with those that have emerged in the International Development Strategy for the Decade. Thus the scenario of the LIDO model demonstrates some of the implications and requirements of the Decade that can be considered to represent a step towards the achievement of the Lima target".[3/]

1/ See Agriculture: towards 2000 (FAO technical working paper).

2/ Ibid.

3/ Industry and Development No 6, op.cit. p.13.

3. Leontief Scenario

Published in 1977,[1/] the projections are derived from a detailed model of the world economy, which is divided into 15 regions, each region being described in terms of 45 sectors of economic activity. It gives particular emphasis to the impact of demographic and environmental developments on economic growth. The model considers 8 scenarios, of which Scenario X may be described as the basic theme, the remainder being variations on this theme. Scenario X assumes "medium" population growth for both developed and developing regions, and "high" per capital GDP targets for developing and developed regions. Employment, investment, balance of payments and food imports are taken to be endogenous. Import and export share coefficients change with regional total per capital incomes, and "pessimistic" estimates of resource endowment are taken. Scenario X gives higher developing country shares of world MVA than the other scenarios.

1/ The Future of the World Economy. A United Nations Study by Wassily Leontief, Ann P. Carter, Peter A. Petri (OUP, New York, 1979).

4. UNCTAD 1978[1/]

The model took as its base 1972 manufacturing output for 3 regions (developed countries, developed market economy countries and socialist countries of Eastern Europe), and arrived at growth rates of MVA for each region which were compatible with past growth rates, and which would fulfil the Lima target. The growth rates and projections of the model are summarized in tables 1 and 3.

5. Trade and Development Report 1981[2/]

The report starts from the basis that the continuation of present trends and the policies will lead to a general slowing down of growth in both industrialized and developing economies, and therefore considers an alternative "non-dependency" development strategy for the Third World. It arrives at a model of accelerating growth in the Third World, from which the North would also benefit subsequently.

1/ Published as Restructuring of World Industry (UN. 1978, Sales No. E77.II.D.7).

2/ Published under that title by UNCTAD in 1981.

6. World Development Report, 1981

Although the underlying model is not clearly set out in the Report, the high case and low case scenarios apparently rest on the following basis:-

High Case

a) Industrialized countries are relatively successful in making structural adjustments in order to boost productivity growth, economize on energy and stimulate its production, and contain inflation while reducing unemployment.

b) Protectionism in industrialized countries is avoided. World exports grow at 5.7% per year.

c) Energy prices will grow at 3% per year in real terms, 10% per year in regional terms.

d) Private capital flows will grow less faster than in the 1970s. In the high case, non-concessional capital flows increase at 3% in real terms. Aid is assured to stay at 0.37% of GNP of industrialized countries.

Low case

a) The industrialized countries fail to make the necessary adjustments under High Case (a).

b) Protectionism is not avoided; world exports grow at 3.7% per year.

c) The same assumption is made about oil prices.

d) Non-concessional capital flows will fall by 2% per year in real terms; ODA will fall to 0.33% of GNP of industrialized countries.

In both cases, developing country performance is seen as being dependent on, and determined by industrialized country performance.

7. Interfutures (OECD)

The scenarios presented here are not described as formal models, and are heavily dependent on "soft discussion". Essentially the flow scenarios are: -

A) High growth in the industrial societies.

B) Continuing slow growth in the developed countries.

C) A hypothetical break-down in North-South relations.

D) New forms of protectionism within the OECD.

These scenarios are defined as follows by OECD:[1/]

"Scenario A: Collegial management and conflicts in the developed countries; increased free trade; increasing Third World participation in world economic exchanges, but varying as between developing countries; sustained economic growth in the developed countries, but no rapid change in values. Relative productivities in OECD countries are assumed to converge.

1/ See Interfutures: Facing the Future, pp.85-87 (OECD, 1979).

Scenarios B1, B2, B3: Identical assumptions as to the nature of relations between developed countries, between developing countries and between the two groups. On the other hand, the developed economies will experience only moderate growth with differences according to the three alternative scenarios. In B1, value changes are rapid and there will be a consensus on the slowdown in growth, since it will be accompanied by a change in the content of "social output" (in the broadest sense of the term). In the other two alternatives, however, there is no significant, unanimously accepted change in values and the slowdown in growth is due more to structural adjustment difficulties at national and international level than to conscious resolve as in B1. Whereas the B2 alternative supposes convergence of relative productivities, B3 assumes divergence linked to social and institutional disparities between the various developed countries.

Scenario C: This was introduced in order to analyse the implications of a North-South confrontation. It supposes the implementation of "delinking" strategies by a majority of developing countries, collegial management by the countries of the North with increased liberalization of their trade, slower growth without any change in values in those countries, and no convergence of productivities because the main OECD zones would be variously affected by the North-South break.

Scenario D: Break-up of the developed-country group and mounting protectionism with the emergence of zones of influence centred around three poles, the United States, the European Economic Community and Japan. These zones will include regional groups (on a continental scale) of developing countries; trade and capital flows will develop preferentially within those zones. These assumptions are coupled with that of slower growth due in part to the destabilization of trade flows. Non-convergence of productivities is due here to the differing impact of the break-up process on the main OECD zones."

8. UNIDO Industrial Development Survey

Although the future projections form only a small part of this work, the statistical and econometric considerations are fully set out. Three scenarios are considered: -

- Historical
- Lima
- High growth

The historical scenario only is considered in this paper. It is based on the assumption that total income will continue to grow at the rates calculated for the period 1900-1975. But the rates of growth of MVA are slightly different from past trends, with the rate in developed countries being slightly lower (5.7% compared with 6%), and in developing countries slightly higher (8% compared with 7.4%). Essentially, the world is projected into the future on the assumption that past trends are continued.

9. The Global 2000 Report

This study is essentially an extrapolation of past trends to see "what conditions are likely to develop if there are no changes in public policies, institutions, or rates of technological advance, and if there are no wars or other major disruptions". The emphasis is on population, resources and the environment. Specifically, the Report projects that world population will continue to grow at 1.8% per annum (2.1% in the less developed regions), and growth rate in GNP is expected to be:

	1975-85	1985-2000
More developed regions	3.9	3.1
Less developed regions	5.0	4.3

(The above represent the middle values).

Food production per head is expected to increase, but there will be no early relief from the world's energy problems. Deterioration of the environment, particularly as it effects agriculture may be considerable.

Annex 2

Manufacturing Sector ICOR's

The empirical work on manufacturing sector ICOR's is limited and not very conclusive. The UNIDO Industrial Development Survey Vol.1 (1969) estimated it to be in region 2.5-3.0, but this was based on only 13 developing countries. Schreuel[1/] estimated that the central values of modal classes for the manufacturing sector ICOR for developing countries is 2.5, and for semi-industrialized and developed countries 5.5. UNIDO used a figure of 3.5 in 1981.[2/] A value of only 2.0 was estimated by Gianaris in 1969.[3/] It is however widely agreed that the value of the ICOR is lower for small and medium enterprises than it is for large-scale enterprises. As economies develop, the latter became more important, and therefore the ICOR tends to increase over time. In selecting a value of 3.0 from this rather unsatisfactory empirical evidence, the tendency has been to try to err on the low side, and the ICOR in 20 years' time may be somewhat higher than 3.0. This would imply that the investment required would be higher than estimated in this paper.

1/ E.J. Schreuel, Some Empirical Aspects of the Incremental capital Output Ratio, Netherlands School of Economics, 1970.

2/ Prospects for setting up an International Bank for Industrial Development (UNIDO 1981, ID/B/261/Add.7).

3/ N.V. Gianaris, International Differences in Capital Output Ratios (American Economic Review September 1969).

Annex 3

Annual Investment in Developing Countries

Data for developing country output is shown below.

(billion 1975 dollars)

	1970	1975	1980
GDP	643	836	1106
MVA	101	150	218

Taking the growth rates of 5.6% in GDP and 8% in MVA for the decade, an economy wide ICOR of 4.3, and a manufacturing sector ICOR of 3.0, the following rough estimates of investment can be derived. (Investment = growth rate x ICOR x value added).

(billion 1975 dollars) Annual Investment in Developing Countries

	1970	1975	1980
Total investment	160	200	260
Manufacturing investment	25	35	50

(Numbers have been rounded).

Annex 4

Capital Flows: a Glossary of Terms

The following extract is taken from the World Bank's World Development Report 1981, and the definitions have been followed in this paper.

Confusion often asises over the definition of such terms as trade balance, resource balance, resource gap and the current account ballance. In this Report they are defined as follows:

- Trade balance. Exports of goods minus imports of goods, or the balance on merchandise trade.

- Resource balance, Exports of goods and nonfactor services minus imports of goods and nonfactor services. Essentially, the trade balance plus the balance on trade in services (such as tourism, shipping), but excluding factor payments (such as interest, workers' remittances and dividends).

- Resource gap. Imports of goods and nonfactor services minus exports of goods and nonfactor services, or the resource balance with the opposite sign. This gap constitutes the net transfer of resources from abroad and is equal to the difference between gross domestic investment and saving. Countries with a negative resource gap (or positive resource balance) save more than they invest and transfer resources abroad.

- Current account balance. In the standard definiton, as used by the IMF and others, this is equal to the resource balance plus net factor income, plus net transfers, both private and official. Because of interest payments on loans, developing countries typically make net factor payments abroad, so their current account deficit is larger, in a negative sense, than their resource balance. It is the Bank's practice, however, to exclude official transfers from the current account deficit. Since these are composed largely of official development assistance received in grant form, it is more appropriate to treat them as a means of financing current account deficits.

Annex 5

Data on Developing Country Debt

Total debt (disbursed) and debt service of developing countries[a/]
(Billion current dollars)

	1971	1975	1976	1977	1978	1979	1980[1/]	1981[2/]
Debt (at year end)	86.6	179.1	216.9	264.6	336.9	397.3	456.2	524
Debt Service	10.9	26.2	32.2	41.0	56.9	73.6	91.2	111.7
of which								
- interest	3.3	9.5	11.8	14.3	19.8	26.0	34.9	46.5
- amortization	7.6	16.7	20.4	26.7	37.1	47.6	56.3	65.2

Source:- Development Co-operation Annual Review 1981 (OECD)
a/ Includes Southern Europe

At 1975 prices

	1971	1975	1976	1977	1978	1979	1980	1981[3/]
Debt (at year end)	152.9	179.1	202.0	228.9	271.3	296.7	312.5	334
Debt Service	19.2	26.2	30.0	35.5	45.8	55.0	62.5	71.1
of which								
- interest	5.8	9.5	11.0	12.4	15.9	19.4	23.9	29.6
- amortization	13.4	16.7	19.0	23.1	29.9	35.5	38.6	41.5

1/ Preliminary; 2/ Estimate; 3/ Assuming an inflation rate of 7.5%.

Annual Real Rates of Growth, 1971-81

Debt	8%
Debt Service	14%
- interest	18%
- amortization	12%

Annex 6

Net long-term financial flows to developing countries[a] from all sources, 1970-1979

(Net disbursements, in billions of US dollars)

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total	17.60	18.95	20.95	26.54	31.46	50.63	50.01	54.94	67.74	70.49
Official Development Assistance.....	7.46	8.36	8.71	10.29	14,68	18.41	17.46	18.53	19.52	24.62
DAC bilateral.....	5.45	6.07	6.26	6.69	8.03	9.27	8.71	9.08	11.91	14.16
Socialist countries of Eastern Europe.....	0.78	0.79	1.11	1.27	1.11	0.88	0.85	0.78	0.82	1.84
Multilateral institutions.	0.88	1.03	0.89	1.18	2.04	2.79	2.63	2.75	3.00	3.45
OPEC bilateral.....	0.35	0.47	0.45	1.15	3.50	5.47	5.27	5.92	3.79	5.17
Non-concessional	10.14	10.59	11.84	16.25	16.78	32.22	32.55	36.41	48.22	45.87
DAC: Official and private export credits ...	2.21	2.79	1.80	1.89	2.62	4.52	5.94	8.52	10.82	8.95
Private direct investment	3.50	2.98	3.77	4.25	1.01	9.44	7.04	7.91	10.30	12.12
Other bilateral	0.80	0.90	0.80	0.18	0.18	0.54	0.62	0.85	1.13	3.45
Socialist countries of Eastern Europe	0.11	0.10	0.11	0.10	0.09	0.09	0.12	0.11	0.10	0.10
Multilateral institutions	0.48	0.67	0.57	0.56	-0.01	1.20	1.43	2.19	2.67	2.87
OPEC bilateral	0.24	0.10	0.30	0.45	4.06	5.98	3.74	1.75	1.59	1.72
Bank lending	2.55	2.80	4.08	8.24	8.50	10.20	12.75	13.17	18.87	14.17
Bonds	0.25	0.25	0.41	0.58	0.33	0.25	0.91	1.91	2.74	2.49
Memo items: Interest payments by developing countries[b]	2.5	2.9	3.6	4.7	6.6	8.6	10.8	13.1	18.2	25.7

Source: UNCTAD secretariat, based on data from OECD and multilateral institutions. See, in particular, OECD, Development Co-operation, 1980 Review (Paris, 1980).

[a] Developing countries in Africa, Asia and Latin America.

[b] Estimates based on OECD and World Bank data.

Taken from: Trade and Development Report 1981 (UNCTAD).